

## What's My Tree?

**Topic:** Biology/Trees and Plants

**Objectives:** Recognize a tree by its leaves and bark and size

**Grade Level:** 4 - 12

**Time:** 20 – 25 minutes

**Materials:** newsprint paper, crayons, pieces of stiff cardboard, measuring tapes, clinometers and tangent tables (for older students), writing pads, pens or pencils

Vocabulary:  
girth  
imprint  
species  
clinometer

**Location:** North Woods, Front Lawn Grove, Saturn Playground, Park Drive Grove or any wooded area of Piedmont Park

**Background:** Trees can be recognized by their different characteristics. The shapes and colors of their leaves, the patterns and textures of their bark, their height and overall shapes are some of the ways different species of trees vary. In this activity you will use texture rubbings of a leaf and the bark of a tree and estimates of the trunk girth and the height of the tree to recognize a tree in Piedmont Park. Older students may estimate the height using a clinometer.

**Advance Preparation:** For older students prepare homemade clinometers or have students make their own.

### Procedure:

1. Choose a partner. Collect one piece of cardboard, two sheets of newsprint paper and one or two crayons and a tape measure from your teacher or activity leader. If you will be finding tree height by using the trigonometric method, collect a clinometer and a table of tangents also.
2. With your partner, scout around the park for a tree you like. Look on the ground around your tree for leaves that have fallen from your tree. Make an imprint of a leaf from your tree by placing one leaf on the cardboard and covering it with a piece of the newsprint. Take the paper wrapping off your crayon and rub a flat side of it firmly over the newsprint covering your leaf.
3. Make an imprint of the bark of your tree by placing the second piece of newsprint on the bark on the trunk of your tree. While your partner holds the paper in place, rub the flat surface of the crayon over the paper.

4. Measure the girth of the trunk of your tree. Keeping the tape measure as level as possible, wrap the tape measure firmly around the trunk at about your eye level. On one of the pieces of newsprint, record the girth of your tree.
5. Here are two ways to estimate the height of a tree. Use one of them to estimate the height of your tree.
  1. Similar triangle method: Find a branch or stick on the ground that is just as long as the distance from your eye to your fist when you stretch your arm as far as you can straight out in front of your face. Your partner can help you determine a stick that is the right length. Now hold the stick in your fist as you stretch your arm out full length. Face the tree and move forward or back until the top of the stick lines up with the top of the tree and the bottom of the stick lines up with the base of the tree. Mark the place on the ground where you are standing. Use the tape measure to measure the distance from where you are standing to the base of the tree. This distance is an estimate of the tree's height.
  2. Trigonometric method: Move a distance away from your tree. Measure this distance and record it. Use your clinometer to measure the angle of elevation from the horizontal to the top of your tree. To do this, hold the clinometer at eye level and site the top of the tree through the straw on the clinometer. Hold the clinometer steady while your partner reads the angle marked by the string as it hangs along the scale on the clinometer. Look up the tangent of the angle on your table of tangents. Multiply your distance from the base of the tree by the tangent of your angle. To this number, add the distance from the ground to your eye level. (Be sure to use the same units of measure as you used for the distance to the tree.) This is the approximate height of the tree.

Record the height of your tree on the newsprint.

6. After you have imprints of a leaf and the bark and estimates of the girth and height of your tree, return to your group. You and your partner exchange the information you collected with another pair of students. Try to locate their tree from the information they give you while they try to locate yours.

**Questions to think about and discuss:**

1. Look at all the leaf imprints that you and your classmates made. What differences do you see in the shapes and textures of the leaves? How many of the shapes listed in the chart below did your class find?

**BASIC LEAF SHAPES**

SHAPE	DESCRIPTION
Needle	Very narrow leaf with nearly parallel sides which come to a point at the tip
Linear	Very narrow leaf with nearly parallel sides and tip is blunt
Round	Leaf is close to circular
Oblong	Sides are nearly parallel
Elliptic	Leaf is broad and narrows at both ends
Heart-shaped	Broad leaf with point at tip and notch at base, like a heart
Ovate	Leaf widens below the middle and narrows at the tip
Obovate	Leaf widens above the middle and is narrower at the base
Lanceolate	Slender leaf that is widest below the middle
Oblanceolate	Slender Leaf that is widest above the middle

2. Compare the textures of the bark imprints you and your classmates found. Look for some that are smooth or some that have flat plates separated by cracks.
3. Try to find another tree in Piedmont Park or in your schoolyard that is the same species as your tree.